

REMARKS

Claims 2-18, 20-30, and 32-42 are pending. Claims 2-4, 8-10, 15, 35, 37, and 41 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 4,346,260 to Kaufmann. Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,346,260 to Kaufmann. Claim 6 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,346,260 to Kaufmann in view of U.S. Patent No. 5,812,274 to Inuzuka et al. Claim 7 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,346,260 to Kaufmann in view of U.S. Patent No. 6,456,319 to Hirasawa et al. Claims 11, 14, and 36 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,346,260 to Kaufmann in view of U.S. Patent No. 6,266,057 to Kuzunuki et al. Claim 12 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,346,260 to Kaufmann in view of U.S. Patent No. 5,604,418 to Filo. Claims 13, 20-22, 25-27, and 29-30 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,346,260 to Kaufmann in view of U.S. Patent No. 4,952,051 to Lovell et al. Claims 16 and 38 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,346,260 to Kaufmann in view of U.S. Patent No. 5,532,711 to Harris. Claims 17 and 39 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,346,260 to Kaufmann in view of U.S. Patent No. 5,532,711 to Harris and U.S. Patent No. 5,581,158 to Quazi. Claims 18 and 40 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,346,260 to Kaufmann in view of U.S. Patent No. 6,590,548 to Mizutani et al. Claims 23-24, 28, 32-34, and 42 stand objected to as being dependent upon a rejected base claim but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Reconsideration is requested. No new matter is added. The rejections are traversed. Claims 41-42 are amended. Claims 43-54 are added. Claims 11, 14-18, 23-24, 27-28, and 32-34 are canceled (claims 11, 14-18, and 27-28 are canceled as they are identical in scope to claims 35-42, respectively). Claims 2-10, 12-13, 20-22, 25-26, 29-30, and 35-54 remain in the case for consideration.

The Office Action Summary reflects information inconsistent with the body of the Office Action. Specifically, the Office Action Summary indicates that claims 28-43 are pending, that claims 28-43 are rejected, and that certified copies of all foreign priority documents have been received. But, in fact, claims 2-18, 20-30, and 32-42 are pending, claims 23-24, 28, 32-34, and 42 have not been rejected (they have only been objected to), and

there has been no claim of foreign priority. The Applicant believes the Examiner was referring to another file by mistake, and that the Office Action Summary is in error.

The Applicant points out that claims 35 and 41 were added in the Response to the Office Action, Paper No. 4, dated March 27, 2003 as claims 11 and 27, respectively, rewritten in independent form. But while the Examiner has rejected claims 35 and 41 under 35 U.S.C. § 102(e), the original forms of these claims (specifically, claims 11 and 27) have been rejected under 35 U.S.C. § 103(a). In the rejections of claims 11 and 27, the Examiner acknowledged that Kaufmann does not teach certain features of the invention. Given that the Applicant agrees with the Examiner that these features are not disclosed by Kaufmann, for purposes of this Response, claims 35 and 41 are treated as also standing rejected under 35 U.S.C. § 103(a) for the same reasons as claims 11 and 27, respectively.

The Examiner has indicated that claims 23-24, 28 (which was identical in scope to previously added claim 42), and 32-34 stand objected to as being dependent upon a rejected base claim but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. New claims 43-48 are claims 23-24, 28/42, and 32-34 rewritten in independent form. Claims 23-24, 28, and 32-34 are accordingly canceled. Although claim 42 remains in the case (and has been amended), new claim 45 is identical in scope to claim 42 as it stood before amendment (and to original claim 28, which was indicated as allowable in both Office Actions to date). As a result, claims 42 and 45 are both allowable.

REJECTIONS UNDER 35 U.S.C. § 102(e)

The Examiner rejected claims 2-4, 8-10, 15, 35, 37, and 41 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 4,346,260 to Kaufmann. The patent application was filed March 29, 2001. Because Kaufmann issued on August 24, 1982, Kaufmann was issued more than one before the filing date of the patent application. Accordingly, claims 2-4, 8-10, 15, 35, 37, and 41 should stand rejected under 35 U.S.C. § 102(b) instead of § 102(e).

Claim 2 recites a drawing tablet comprising: a translucent surface; and an imaging sensor mounted below the surface, the imaging sensor designed to capture an image on the surface even if the image is occluded from above.

Claim 35 recites a drawing tablet comprising: a translucent surface; and an imaging sensor mounted below the surface, the imaging sensor designed to capture an image on the surface even if the image is occluded from above and to capture images of physical objects placed on the surface.

Claim 37 recites a drawing tablet comprising: a translucent surface; an imaging sensor mounted below the surface, the imaging sensor designed to capture an image on the surface even if the image is occluded from above; and light projecting means.

Claim 41 recites a method for using a drawing tablet, the method comprising: capturing an image from beneath a translucent surface of the drawing tablet so that no objects on the surface of the drawing tablet are occluded from above; transmitting the captured image to a computer; processing the captured image on the computer for display on a monitor; and projecting a light onto the drawing tablet.

In contrast, Kaufmann teaches a method and apparatus for using a drawing machine. A computer receives input from a special input device using a sensor. Kaufmann mentions two possible input devices: a digitizing pen and a cross-wire sensor (*see* column 2, lines 25-28). A sensor tracks the location of the input device, which a computer then uses to move a head of a drawing machine. The drawing produced by the drawing machine head is then projected beneath the drawing field, so that the user can see the drawing as if he had moved an ordinary pen over the drawing field.

There are at least two significant differences between the patent application and Kaufmann. The first difference lies in what the apparatus is sensing. In the patent application, the claims are all quite clear that the imaging sensor captures an *image*. This image can be generated in any number of ways, such as by drawing on the surface or by placing objects on the surface, but it is the image that is being captured. This point is further elaborated on in new claim 49, which describes the imaging sensor as designed to capture indicia visible on the image. In contrast, Kaufmann only teaches using a digitizing pen or a cross-wire sensor with a sensor plate. The digitizing pen or cross-wire sensor and the sensor plate are connected to a computer via leads. That is, Kaufmann only captures location information about the input device: it is not capturing an image. As stated on page 3, lines 11-12 of the specification, “no specialized tools are required to draw on drawing tablet 105.” Thus, the simple fact that Kaufmann requires specialized tools should be evidence enough to show that Kaufmann does not anticipate the invention.

The fact that Kaufmann is not capturing an image is reinforced by further discussion in Kaufmann. At column 2, lines 42-47, Kaufmann describes how “the illuminated picture on the drawing table surface 11 is then projected, by a lens 14 and associated inversion mirrors 15 and 16, onto drawing field 3.” If the user were generating the image using the digitizing pen or cross-wire sensor, then there would be no need for Kaufmann to project the image onto the underside of the drawing field.

A related difference between the patent application and Kaufmann lies in Kaufmann's inability to capture images of physical objects on the surface of the drawing tablet. As noted above, Kaufmann can only detect the location of specialized input devices. Thus, Kaufmann cannot capture images of physical objects on the surface of the drawing tablet.

In addition, it would be incorrect to say that Kaufmann is capturing images of even the specialized input devices. For Kaufmann to capture an image of the digitizing pen or cross-wire sensor would require Kaufmann to generate an image of the digitizing pen or cross-wire sensor. But Kaufmann does not do this: it only locates the position of the digitizing pen or cross-wire sensor: it does not capture an image of the input device.

A second difference is what is transmitted to the computer after capture. In the patent application, the drawing tablet transmits the captured image. That is, whatever image is captured by the imaging sensor is transmitted to the computer. In contrast, the computer in Kaufmann only receives one datum: the current location of the digitizing pen or cross-wire sensor. Kaufmann constructs the image by keeping a history of where the input device has been over time. Thus, Kaufmann cannot *capture* an image: it only receives a single data point, and constructs the image over time. This feature is further elaborated upon in new claim 49, which describes the imaging sensor as designed to capture indicia visible on the image.

As Kaufmann does not anticipate the invention as described in claims 2, 35, 37, and 41, claims 2-10, 12-13, 35, 37-39, 41-42, and 49 are allowable under 35 U.S.C. § 102(e)/102(b) over Kaufmann. And since all of claims 2-10, 12-13, 35, 37-39, 41-42, and 49 include at least one feature of the invention that Kaufmann does not teach, all of claims 2-10, 12-13, 35, 37-39, 41-42, and 49 are allowable.

REJECTIONS UNDER 35 U.S.C. § 103(a)

Claim 20 recites a method for using a drawing tablet, the method comprising: capturing an image from beneath a translucent surface of the drawing tablet so that no objects on the surface of the drawing tablet are occluded from below; transmitting the captured image to a computer; and processing the captured image on the computer for display on a monitor.

Claim 29 recites an article comprising: a storage medium, said storage medium having stored thereon instructions, that, when executed by a computing device, result in: receiving an image captured from beneath a translucent surface of a drawing tablet, the image captured in a manner such that no portion of the surface of the drawing tablet is occluded from below; modifying the received image; and displaying the modified image.

Claim 35 recites a drawing tablet comprising: a translucent surface; and an imaging sensor mounted below the surface, the imaging sensor designed to capture an image on the surface even if the image is occluded from above and to capture images of physical objects placed on the surface.

Claim 36 recites a drawing tablet comprising: a translucent surface; an imaging sensor mounted below the surface, the imaging sensor designed to capture an image on the surface even if the image is occluded from above; and software in a computer designed to animate at least a portion of the image based on a movement of a physical object placed on the surface.

Claim 40 recites a drawing tablet comprising: a translucent surface; an imaging sensor mounted below the surface, the imaging sensor designed to capture an image on the surface even if the image is occluded from above; and an additional light source to increase contrast of the image on the surface as captured by the imaging sensor.

Claim 41 recites a method for using a drawing tablet, the method comprising: capturing an image from beneath a translucent surface of the drawing tablet so that no objects on the surface of the drawing tablet are occluded from above; transmitting the captured image to a computer; processing the captured image on the computer for display on a monitor; and projecting a light onto the drawing tablet.

The Examiner has admitted that Kaufmann does not teach certain features of the claims. With reference to claims 20 and 29, the Examiner acknowledges that Kaufmann does not teach transmitting the captured image to a computer and processing the captured image on the computer for display on a monitor. With reference to claim 36, the Examiner acknowledges that Kaufmann does not teach the imaging sensor being designed to capture images of physical objects placed on the surface. With reference to claim 40, the Examiner acknowledges that Kaufmann does not teach an additional light source to increase the contrast of the image on the surface as captured by the imaging sensor.

The Examiner has not explicitly rejected claims 35 and 41 under 35 U.S.C. § 103(a). But as claims 35 and 41 are claims 11 and 27 rewritten in independent form and the Examiner has rejected claims 11 and 27 under 35 U.S.C. § 103(a), the Applicant treats claims 35 and 41 as also rejected under 35 U.S.C. § 103(a). With reference to claim 11 (and therefore claim 35), the Examiner has acknowledged that Kaufmann does not teach the imaging sensor being designed to capture images of physical objects placed on the surface. With reference to claim 27 (and therefore claim 41), the Examiner has acknowledged that Kaufmann does not teach transmitting the captured image to a computer and processing the captured image on the computer for display on a monitor. The arguments below are divided

according to which prior art reference the Examiner used in combination with Kaufmann under 35 U.S.C. § 103(a).

Kaufmann in Combination with Kusunuki (claims 35-36)

The Examiner argues that Kusunuki teaches the features missing from Kaufmann: specifically, an imaging sensor designed to capture images of physical objects placed on the surface. Kusunuki teaches an information processing system, which includes the physical objects being manipulated by the operator. There are representations of the physical objects. A camera monitors the desk display surface, and the operator can control the computer by moving the physical objects.

There are three problems with the combination of Kusunuki and Kaufmann. The first problem is that the camera taught by Kusunuki does not capture images, as claimed. The second problem is that the camera taught by Kusunuki does not address the problem of occlusion from above. The third is that Kaufmann and Kusunuki cannot be combined as suggested by the Examiner.

First, although Kusunuki describes the camera as monitoring the desk display surface, Kusunuki does not use the camera to capture images of objects. This may seem to be an incorrect assertion, given that Kusunuki talks about “the image monitored by overhead camera 300” (*see* column 6, lines 45-46). But the rest of that paragraph (column 6, lines 44-58) make it clear that Kusunuki is not using the camera to capture images of physical objects: Kusunuki is instead using the camera to recognize hand gestures, something that does not require any recognition of color, or even any more detail than an object’s border.

The Applicant recognizes that many of the figures in Kusunuki show details beyond the border of an object (e.g., the operator’s hand, and other shapes). But the figures in question show what is happening in the real world, and not necessarily what the camera sees. Image processing, as performed by Kusunuki, is a complicated process. Processing extra details, such as the color of an object, would be unnecessary work and would greatly increase the complexity of image processing. It is unreasonable to read Kusunuki as determining anything more than it requires, and the camera of Kusunuki does not require color or detail.

In fact, there is additional evidence that the camera of Kusunuki operates by monitoring shapes, and not details or colors. At column 7, lines 18-20, corresponding to FIG. 2, Kusunuki describes the camera as being positioned above the plane display, with a light source below the plane display. And at column 19, lines 21-25, Kusunuki describes an alternative embodiment, where the hand operation can be monitored with an overhead light

and the camera underneath the plane display unit. It is a well known fact that in photography, taking a picture with the camera pointed into a light source causes the captured image to have no detail: all that is captured are shadows of objects between the camera and the light source. Kuzunuki depends on this fact, because solid objects (such as papers, books, and hands) will create good, crisp shadows, which can then be monitored. But while putting the camera directly opposite a light source is enough to monitor hand gestures, it is insufficient to properly capture images, as claimed in claims 35-36, or indicia of the image, as claimed in claims 52-53.

Second, as noted above, Kuzunuki is only monitoring shadows. Whether the camera is above or below the plane display makes no difference to shadows, as shadows merge. That is, the combined shadow of two objects is the same, regardless of which object is above the other. Thus, Kuzunuki cannot (and does not) address the question of occlusion of objects from above.

Finally, even if Kuzunuki could be interpreted as teaching image capture (as opposed to shadow capture) and as addressing occlusion from above (the Applicant disputes both of these assertions), the drawing table of Kaufmann is not designed to receive any input from the camera of Kuzunuki. The fact that the Examiner has found a reference that teaches a camera does not mean that the drawing table of Kaufmann can be adapted to include the camera of Kuzunuki. And, in fact, Kaufmann teaches away from modification as suggested by the Examiner. If the drawing table of Kaufmann could be adapted to include a camera, there would be no need for the digitizing pen or cross-wire sensor, upon which Kaufmann is completely dependent for input. The Examiner's argument is akin to saying that, because automobiles are known, and airplane wings are known, it is possible to modify a car to include an airplane wing, thereby making the car fly. The mere fact that multiple different pieces of prior art exist is not enough to make obvious an invention that might combine those elements: the prior art must also teach how to make the elements work together.

Because the combination of Kaufmann and Kuzunuki does not make obvious the invention as claimed in claims 35-36, claims 35-36 and 52-53 are allowable under 35 U.S.C. § 103(a) over Kaufmann in view of Kuzunuki.

Kaufmann in Combination with Mizutani (claim 40)

The Examiner argues that Mizutani teaches the features missing from Kaufmann: specifically, an additional light source to increase contrast of the image on the surface as captured by the imaging sensor. But the cited description of the additional light source

(column 1, line 65, through column 2, line 3) describes the use of backlighting a screen to improve the contrast of a *displayed* image, not an image for capture. The Examiner has acknowledged that the use of the additional light source in claim 40 is to increase the contrast of the image *as captured*. As Mizutani is using the described additional light for a purpose other than that claimed (and provides no description that the additional light could be used for the claimed purpose), claim 40 is allowable under 35 U.S.C. § 103(a) over Kaufmann in view of Mizutani.

Kaufmann in Combination with Lovell (claims 20, 29, and 41)

The Examiner argues that Lovell teaches the features missing from Kaufmann: specifically, transmitting a captured image to a computer and processing the captured image on the computer for display on a monitor; and projecting a light onto the drawing tablet. Lovell teaches a method and apparatus for producing animated drawings. The computer shows to the animator the drawings before and after the drawing that the animator is working on, so that he can distinguish them but be able to see how the animation will proceed. The computer is also capable of arbitrarily inserting, deleting, and editing drawings. The computer also can show the animation to the animator, and produce output.

There are two problems with Lovell as prior art. First, Lovell and Kaufmann are non-analogous prior art. For references to be combined in a § 103 rejection, the art cited must be analogous. The Federal Circuit has stated that there are two situations in which prior art is considered analogous: first, when the art is in the same field of endeavor as the application; and second, if the reference is reasonably pertinent to the problem the application addresses. See *In re Clay*, 23 U.S.P.Q.2d 1058 (Fed. Cir. 1992), cited in *Wang Laboratories Inc. v. Toshiba Corp.*, 26 U.S.P.Q.2d 1767, 1773 (Fed. Cir. 1993), and *State Contracting & Engineering Corp. v. Condotte America Inc.*, 68 U.S.P.Q.2d 1481, 1489 (Fed. Cir. 2003). In *Wang Laboratories*, the application related to single in-line memory modules (SIMMs) for use in personal computers; the prior art related to a SIMM for an industrial controller. Despite the fact that the application and the prior art both related to memory, this was not enough for the prior art to be considered in the same field of endeavor as the application.

Similarly, the claims in the application and Lovell are not in the same field of endeavor. The claims are directed toward a drawing tablet and a method for using a drawing tablet, but Lovell teaches a system for performing computer-assisted hand-drawn animation. While the claims of the application may describe using a computer to animate images based on user actions, these actions are not those performed by animators. Animators have to draw

each image in the animation one at a time, and Lovell assists the animator in this endeavor by showing the animator previous and next images in the animation. But Lovell is not a tool designed for use by any typical person: it is designed specifically for animators. In contrast, the claims are directed toward an apparatus and method that may be used by an average person, without the specific skills used by animators. In effect, the claims of the application implement some of the acts performed by an animator: techniques that an ordinary person would not know how to do. A person implementing a drawing tablet would have no reason to consider technology relating to animation in determining how to solve a problem. As Kaufmann and Lovell are non-analogous art, the Examiner cannot combine them in arguing that the invention is obvious.

Second, Lovell, like Kaufmann, relies on a graphics tablet and stylus to receive input. Like Kaufmann, Lovell captures point data. That is, Lovell determines where the stylus is at any given time, and uses its location relative to a previous location to determine an action. As Lovell is capturing point data, it cannot capture images. For example, an animator, using the Lovell system, could not draw an image on a transparency, place it on the graphics tablet, and have the computer system immediately capture the image. But such a use is within the capabilities of the claimed invention (although not the only possible use of the claimed invention). Accordingly, Lovell does not capture images, as claimed.

New claims 50-51 and 54, similar to new claims 49 and 52-53 discussed above, further define the method and article claims of claims 20, 29, and 41, respectively, with the indicia of the image captured. As neither Kaufmann nor Lovell teaches capturing the indicia of an image, new claims 50-51 and 54 are allowable.

Because Lovell does not capture images as claimed, Lovell is also incapable of processing captured images. While Lovell may process the point data, the as argued above, the point data are not the same as a captured image. Thus, whatever Lovell may do, it is not processing a captured image.

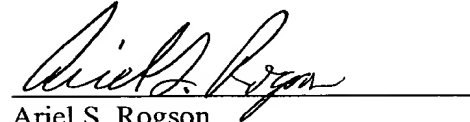
As claims 20, 29, 35-36, and 40-41 are not obvious over Kaufmann in view of Kusunuki, Mizutani, or Lovell, claims 20-22, 25-26, 29-30, 35-36, 40-42, and 50-54 are allowable under 35 U.S.C. § 103(a) over Kaufmann in view of Kusunuki, Mizutani, or Lovell. Therefore, all of claims 20-22, 25-26, 29-30, 35-36, 40-42, and 50-54 are allowable.

For the foregoing reasons, reconsideration and allowance of claims 2-10, 12-13, 20-22, 25-26, 29-30, and 35-54 of the application as amended is solicited. The Examiner is

encouraged to telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

Respectfully submitted,

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